BNFL Inc.

Memorandum

To: Distribution

Date: August 26, 2002
Pages: 1 page

Ref: FPH-181-2002
AM-BN-L-5047

From: Fred Hughes FPH

Subject: **Permit to Construct Exemption for Two Standby Generators for the AMWTF**

The attached Category II Exemption documents that the two standby generators (a 400 kW and 600 kW) for the AMWTF (WMF-676) meet all of the requirements to exempt the two generators from obtaining a permit to construct. The standby generators are powered by diesel and are used to provide back-up power when electric power from the local utility is interrupted. It is important to note that the two generators are limited to 200 hours per year each for maintenance activities, but are not limited in the event power is interrupted.

This memo and the attached exemption will be placed in the facility operating record and submitted to the DEQ upon request. Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

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CATEGORY II EXEMPTION

FOR TWO STANDBY GENERATORS FOR THE

ADVANCED MIXED WASTE TREATMENT FACILITY

August 2002

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1.0 Introduction

The Advanced Mixed Waste Treatment Facility (AMWTF) has two standby generators that are powered by diesel and are used to provide back-up power when electric power from the local utility is interrupted. The 400 kW (Model No. 400DFEH) supplies back up power for the Criticality Incident Detection, Radiation Monitoring System, Fire alarm systems, emergency exit/egress lights, and the integrated control system. The 600 kW (Model No 600DFEH) supplies back up power for the Zone 3 Ventilation Extract, Zone 2 Supply, Glove box extract and damper control system. These lists are not all-inclusive but provide a good idea for the purpose of each generator.

This document demonstrates that the two AMWTF standby generators meet the requirements to exempt the two pieces of equipment from obtaining a permit to construct. The standby generators meet all of the general exemption criteria (IDAPA 58.01.01.220) and the specific requirements for a Category II Exemption (IDAPA 58.01.01.222). Listed under the Results Analysis section is a list of each requirement and how the requirement is met.

2.0 Calculation of Emissions

2.1 Diesel Generator Emissions.

Emissions from the back-up diesel generators located at the SE corner of the AMWTF are estimated as detailed in Table 1 using vendor-supplied data. The maximum hourly rate is calculated assuming generator operation at the rated standby input capacities for 1.0 hour. The potential to emit is based on 500 hours of operation (ref. EPA Memorandum dated January 25, 1995) for emergency generators.

3.0 Results Analysis

Below is a list of each of the requirements and how the requirements are met for the Category II Exempt sources

220. GENERAL EXEMPTION CRITERIA FOR PERMIT TO CONSTRUCT EXEMPTIONS **01. General Exemption Criteria**. Sections 220 through 223 may be used by owners or operators to exempt certain sources from the requirement to obtain a permit to construct. No permit to construct is required for a source that satisfies all of the following criteria, in addition to the criteria set forth at Sections 221, 222, or 223: **a.** The maximum capacity of a source to emit an air pollutant under its physical and operational design without consideration of limitations on emission such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored or processed would not: **i.** Equal or exceed one hundred (100) tons per year of any regulated air pollutant.	
Response	This source will not exceed one hundred tons per year of any regulated air pollutant (see Table 1).
	ii. Cause an increase in the emissions of a major facility that equals or exceeds the significant emissions rates set out in the definition of significant at Section 006.
Response	These generators will not increase the emissions of a major facility that equals or exceeds the significant emission rates set out in the definition of significant at Section 006 (see Table 2).
	iii. Cause or significantly contribute to a violation of an ambient air quality standard, based upon the applicable air quality models, data bases, and other requirements of 40 CFR Part 51, Appendix W (Guideline on Air Quality Models). No demonstration under this subsection is required for those sources listed at Subsection 222.02.
Response	Generator emission estimates for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (VOCs), PM-10, and SO_2 were input into the SCREEN 3 model to determine ambient concentrations at 3000 meters (EBR-1). Since SCREEN 3 is for a one-hour average only, the concentrations were adjusted for the appropriate averaging periods. DEQ recommended persistence factors were used to convert one-hour average model outputs to

	averaging periods consistent with the standard for the pollutant modeled. The ambient contributions from the generators were then added to the AMWTF ambient concentrations and the Idaho background ambient concentrations for these pollutants and the totals compared with the Section 577 NAAQS. The results are shown in Table 3. The combined ambient concentrations are still significantly below the NAAQS limits
	iv. Combination. The source is not part of a proposed new major facility or part of a proposed major modification.
Response	This source is not part of a proposed new major facility nor is it part of a major modification.
	02. Record Retention. Unless the source is subject to and the owner or operator complies with Section 385, the owner or operator of the source, except for those sources listed in Subsections 222.02.a. through 222.02.g., shall maintain documentation on site, which shall identify the exemption determined to apply to the source and verify that the source qualifies for the identified exemption. The records and documentation shall be kept for a period of time not less than five (5) years from the date the exemption determination has been made or for the life of the source for which the exemption has been determined to apply, which ever is greater, or until such time as a permit to construct or an operating permit is issued which covers the operation of the source. The owner or operator shall submit the documentation to the Department upon request.
Response	A copy of this exemption will be kept in the Facility Operating Record and submitted to the Department upon request.
	222. CATEGORY II EXEMPTION. No permit to construct is required for the following sources. **01. Exempt Source**. A source that satisfies the criteria set forth in Section 220 and that is specified below:
	d. Stationary internal combustion engines used exclusively for emergency purposes which are operated less than two hundred hours per year and are fueled by natural gas, propane gas, liquefied petroleum gas, distillate fuel oils, residual fuel oils, and diesel fuel; waste oil, gasoline, or refined gasoline shall not be used.
Response	The standby generators are powered by diesel and are used to provide back-up power when electric power from the local utility is interrupted.

Table 1 Emissions from the two Diesel Standby Generators

Pollutant	400 kW	600 kW	Total Maximum Hourly Emissions	Generator: Standby 400 kW	Generator: Standby 600 kW	Total Annual Emissions
Number of units	1	1		1	1	
	755 HP	900 HP	Standby	500 hrs/yr	500 hrs/yr	Standby
	lb/hr	lb/hr	lb/hr	ton/yr	ton/yr	ton/yr
Carbon monoxide	6.7E-01	2.2	2.9E+00	1.7E-01	5.6E-01	7.2E-01
Nitrogen oxides	9.5E+00	2.6+01	3.6E+01	2.4E+00	6.6E+00	9.0E+00
Sulfur dioxide	1.0E+00	1.3	2.3E+00	2.6E-01	3.1E-01	5.7E-01
PM/PM-10	1.3E-01	3.6E-01	4.9E-01	3.3E-02	8.9E-02	1.2E-01
Ozone (VOCs)	2.3E-01	.83	1.1	2.1E-01	1.4E-01	2.75E-01

Table 2 Significant Emissions Comparison

Pollutant	400 kW	600 kW	Total Emissions	*Significant Emission Limit*	*% of Significant Limit*
	ton/yr	ton/yr	ton/yr	ton/yr	
	Standby	*Standby*	*c*	*d*	*e*
Carbon monoxide	.17	.56	.73	100	0.73%
Nitrogen oxides	2.4.	6.6	9	40	22.5%
Sulfur dioxide	.26	.31	.57	40	1.42%
PM-10	.033	.089	.12	15	0.8%
Ozone (as VOCs)	.058	.21	.27	40	0.69%

Table 3 National Ambient Air Quality Standards Analysis

Pollutant	CO	CO	Lead	NO2	Ozone	PM-10	PM-10	SO2	SO2	SO2
(Units vary, see below)	(8-hr)	(1-hr)	(quarter)	(annual)	(1-hr)	(annual)	(24-hr)	(annual)	(24-hr)	(3-hr)
Diesel Generators Emissions	2.9E+00	2.9E+00	NA	3.6E+01	1.1E+00	4.9E-01	4.9E-01	2.3E+00	2.3E+00	2.3E+00
Diesel Generators Ambient Conc'n.	3.2E+01	4.6E+01	NA	4.6E+01	1.8E+01	6.2E-01	3.2E+00	2.9E+00	1.5E+01	3.3E+01
ID Background Ambient Conc'n.	5.1E+03	1.1E+04	NA	4.0E+01	7.8E+01	3.3E+01	8.6E+01	2.4E+01	1.4E+02	5.4E+02
Max AMWTF Ambient Conc.	3.4E+01	1.7E+02	NA	2.3E-02	2.8E+01	7.2E-04	3.3E+00	2.3E-03	8.8E+00	3.5E+01
Combined Ambient Conc'n.h	5.2E+03	1.1E+04	NA	8.6E+01	1.2E+02	3.4E+01	9.3E+01	2.7E+01	1.6E+02	6.1E+02
Sect. 577 NAAQS (ug/m3)	1.0E+04	4.0E+04	NA	1.0E+02	2.4E+02	5.0E+01	1.5E+02	8.0E+01	3.7E+02	1.3E+03
UNITS	Emissions: lb/hr			Concentration: ug/m^3						
Generators% of NAAQS limit	0.3%	0.1%	NA	45.8%	7.3%	1.2%	2.1%	3.6%	3.9%	2.5%
ID Background % of NAAQS limit	51.0%	27.5%	NA	40.0%	32.5%	66.0%	57.3%	30.0%	37.8%	41.5%
Combined % of NAAQS limit	51.7%	28.0%	NA	85.8%	51.5%	67.2%	61.7%	33.6%	44.2%	46.8%